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Forward

The Network of European Technocrats was formed over the Internet in 2005 and became a legal entity in 2006. The organisation promotes an alterntaive socioeconomic systm for a sustainable world. The system has it's roots in science and aims to balance the needs of society with those of the eco-system. It does not use money, but instead guarantees equal access to the resources of society using a system of resource allocation based on the energy available for production. They system does not rely on the opinions or beliefs of politics but instead relies on experts in their various fields working towards goals that aim to achieve the highest standard of living in a sustainable way.

This journal presents the thoughts and ideas of some of NET's members and associates on the subject of technocracy. Original posted on the Internet, the editor has gathered them together as a reference volume of technocratic thought for the period 2006 – 2007.

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Chapter 1

The European Model

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As with technocratic theory, the design has seperated into both the North American and European schools of thought, however as before common ground may be found amongst the principles that both schools of thought share as beginning points. Central to the design of both North American and European technocratic schools is the call for fundamental structural changes to the existing political and economic makeup of industrial society, that the social realm may accurately reflect the physical basis upon which it is built. Presently the North American model is the only in existence that can be said to be complete; however the following lists the beginning points of a European model which is still under development. It should be noted that

the North American model has been used as a beginning point itself, the influence of which is indicated below:

Crucial concepts

1. Influence of technology [American] and social change [European]

The key observation of the technocratic doctrine is the role of high energy technology in forging the material wealth of industrial societies. As a theoretical foundation, the North Americans sought to use this influence to create a model of society in which the human adapted to physical changes in society, such as the incorporation of load factor analysis in determining resource and technology use. Social change in a sense was to occur as a structural response to changes in the physical operating characteristics of infrastructure and the engineering of the social environment. The European model incorporates the physical changes to the social realm also, but proposes that social change occur concurrently as a dynamic element of technological change instead of a response. This derives from the theory that ideas and values influence human behaviour in addition to the physical characteristics of society.

2. Absolute abundance [American] becomes Relative abundance [European]

The original technocrats proposed that an abundance of material resources, technology and trained personnel existed in the industrial society of North America during the 1930's, which demanded an economic model that reflected this abundance. The so called abundance was derived from the observation that there existed the capacity to produce more goods than could be consumed by the population, and that the abundance of energy resources such as oil, coal and gas was the prime driving force behind this apparent abundance. The European model recognizes the need to incorporate not only the availability and quantity of resources but also the dynamic equilibrium that exists between resources, population and the renewal of resources for continued use. Thus 'relative abundance' is utilized as a term to indicate the relative balance of resources to that which can be effectively produced, consumed and returned to the production cycle.

3. Energy accounting [American] and alternative methods of distribution [European]

Proposed as an alternative to money and a means to track the consumption of goods and services, energy accounting characterizes one of the central distributive approaches to economics that the early technocrats made. Energy accounting was intended as a means to track the energy expended in the production of goods as a ratio of the extraneous energy available for the total production of goods over a given geographical region,

of which an equal portion was to be provided to consumers. It was stated that, given the abundance put forward in the prior argument, consumers would find themselves with more energy 'credit' than they could possibly consume. The European model recognizes that energy accounting is applicable only to the production and distribution of very large quantities of goods, and that other realms of the economy (such as services) are not readily applicable to energy accounting practices given the difficulties in quantifying them in a meaningful manner. In addition to this development, the European model has begun to recognize the role of exchange and distribution in shaping human motivational behaviours, and refined the energy accounting role to one of managing the energy resources of an economy rather than distributing them.

4. Dynamic equilibrium and sustainable development [European]

A new addition to technocratic analyses is the inclusion of ecological and climate concerns into the physical analysis of the social realm. Key among these analyses is the recognition that issues of energy availability, climate change and ecology represent a unified issue in terms of the flow of resources from the earth to industrial society, and eventually back to the environment. This element of the European model recognizes the requirement to reduce the dependence on non-renewable and cost-externalized resources in order for the social realm to continue to develop.

5. Consumerist paradise [American] in light of ecological footprints and enlightened immaterialism [European]

The original North American model proposed that individuals would be given the greatest freedoms to both behave and consume as they pleased. Among the means by which people would receive such freedoms would be the free distribution of goods and services based on the approach of energy accounting. Given the assertion of abundance, it was said that people would not be physically limited by scarcity of resources as they are in a price system. The European model emphasises that the original model based this assumption on the availability of mainly fossil fuels, the mass use of in the present day would be not only foolish but highly untenable due to the increasing scarcity of said fuels and the impact these fuels have on climate and ecology. Tied into the notion of concurrent social change with technological change, it is proposed that a general change in philosophy and ideas about consumption is required in order to bring about positive social change.

6. Functional use of available resources [American] and feedback of resources to maximize their functional utility [European]

Central to both the philosophy and design of the North American technate was the efficient use of resources to maximize the abundance of goods and services. As a development of this, the

European model seeks to do this with not only the functional use of available resources, but the feedback of these resources in closed infrastructural loops in order to maximize the absolute functional utility of all resources. This includes the conservation of resources in order to maximize their utility, in addition to the reduction of waste.

7. Meritocracy [American] and Democracy [European]

Perhaps the most well known of technocratic theses is the proposal that scientists and engineers manage society in a role akin to that of politicians. The original North American model proposed that a hierarchical distribution of experts would manage the technical aspects of society, which was taken to include not only the production and distribution of goods and services, but also the judiciary, police and military. Politics was to be dealt away with due to it's inherent inefficiency to manage the economy, and to ward away the danger of populism in dealing with largely physical matters that had their root in scientific analyses rather than popular consent. The European model proposes that although a meritocratic distribution of experts to manage economic matters on a physical or thermodynamic basis is necessary in such a design, there exists areas of society to which individuals must have the power to influence, lest they become unregulated agents of tyranny. These areas focus on the social arena and largely involve collective decisions that relate to the values and ideas of said collective groups, including access to a democratic and impartial judicial system.

8. Centralized [American] becomes decentralized [European]

Extending from the meritocratic structure of decision making, the North American model proposed that the operation of an entire technate would occur on the basis of a hierarchy of engineers and scientists covering an entire continental area. Said engineers would manage the infrastructure of the continent according to this hierarchy, and distribute goods and services from a central point of command. Developments in the European model have focused on de-centralizing this hierarchy into smaller co-operative units distributed over large geographical regions. The rationale behind this approach is to maximize the autonomy of smaller communities while maintaining the interdependence necessary for the large scale operation of a technological mechanism.

9. Hierarchical [American] and co-operative [European]

The distribution of power and authority in the original design was largely pyramidal, extending to a tip at the head of the technate where decisions would be made upon all aspects of society, using impersonal scientific methods. The European model recognizes the need to diffuse power and authority horizontally in order to encourage co-operation, and lateralize responsibility.

10. Provincialism [American] and internationalism [European]

The original model called for the establishment of a Technate over a limited geographical area, notably a continent. Also limited in this model was the extent to which the technate interacted with it's neighbours and other states/technates. The European model teeters between such provincialism and a more international approach.

Part I

Ecology

Chapter 2

Empathy and the Planet

Enrique Lescure

What does it mean to be a European technocrat of our generation?

Or more importantly... What should it mean?

2.1 The inherent irrationalism of Modern civilisation

TTo be a technocrat is to be aware that sustainability is more than just how much we regulate the current system, how many warning signs we place on toxic materials or how many wildlife reserves we have today. Nit-picking in details while ignoring the entirety of the situation is not a matter for a serious technocrat. Although specialisation is crucial, awareness of some sort of holistic existence is necessary in order to function as a constructive individual in relation to the planet as a whole.

The original technocratic movement dared to confront the consensus of resource theory, and show that the main factor in producing prosperity was the amount of energy used within a given system which determines the amount of work that is necessary to create a state of plenty, not the amount of investment [see lesson 10, P72-P77, [26]].

Thus, akin to that conclusion, we can see that the machinations of the price system, requiring endless growth, are hopelessly outdated in managing a high-energy economy where scarcity is possible to eliminate. We can also notice that the need for the human being to take care of him/herself within a price system which is hierarchically structured stipulates that he/she should work to increase the amount of resources and try to give him/herself a value on the market. If the market is lacking natural consumer demand, artificial consumer demand is created through branding [see for example [24]] or by the government subsidising surpluses [9] thus creating illusions of scarcity which

makes the market prevail through artificial respiration. Keynesian economics are also an excellent example of the government and market cooperating in order to diminish the threat of abundance.

It stands clear that absolute abundance, exactly as absolute scarcity, does not exist. After all, we live on a planet which is geographically limited. We could assume that a given state where all individuals have access and ownership over an unlimited amount of resources is unrealistic.

What we have instead been advocating through the history of N.E.T., is that there exists a relative abundance which is dependent on our treatment of resources which are limited in their nature but grossly overexploited today, sadly enough by the very price system, adherents of which claim consider it to be superior in solving problems of distribution.

It remains fundamentally clear though, through the history of the human race, that the interests of direct survival exceed those of a more far-sighted enlightenment. Even though the stress we are putting the environment under is evident, the interests of ecology is deep below those of short-sighted economic gains for the moment. Through extensive legislation, the European Union is trying to counter some of the worst observable effects of the current socio-economic system employed in the world.

Or is it?

It seems like the current trend is rather of a traditional nature, probably unintentionally but nevertheless frustrating in its stern inefficiency. Instead of decisively putting out the production of goods that are severely harming the environment, the

European Union is putting taxation on these goods, as well as subsidising their producers (while putting all the weight on the consumers).

Warning signs of the effects of cigarette smoking are funded by the European Union, but the producers are subsidised as well [25]. Otherwise, the poor tobacco farmers would go unemployed.

What N.E.T. proposes for Europe is a system where the production of items is directly regulated by the citizens through an interactive economy where energy accounting reduces the need for unrestrained economic growth. In that system, the production would be optimally utilised in order to have the maximum amount of efficient output from the minimum amount of input. We see no value in branding, careerism, apparent waste, and environmental degradation for the sake of regulating a modern infrastructure through means of a pre-modern epoch.

Even though N.E.T.'s proposed design might not yet be fully complete, we are tirelessly working to create a viable alternative to the present order for the European people.

The European technate would aim to offer a high standard of life, a high level of automation, unlimited leisure and freedom from taxes, bills, poverty, debts, and most of the social illnesses associated with these current established codes of conduct.

As technocrats, our operative goal is the highest possible standard of life for the greatest number of people for the longest possible time-frame. That notion we share with our sister organisation in the North American continent.

2.2 The continentalism of the Orthodox position

So let us now discuss an obvious problem which I could see with the technocratic outlook on the world, in it's traditional, orthodox form advocated by the Americans. That problem is not what I would call an inherent flaw of the technocratic design, but rather a mental barrier which is limiting the scope and efficiency of the technocratic movement, and hampering it's message towards contradictions which technocracy must defeat if it should take it's rightful place as a beacon for a new millennium.

That problem which I am referring to, ladies and gentlemen, is obviously the inherent isolationism stressed by the North American technocrats during the 30's. That isolationism is a by-product of the supranational ideology stressed by the original technocrats, known as continentalism, which simply resulted from the data available at that time, that the major part of the world (that is, everything except for Americas from the Arctic to the Orinoco river) is simply not suitable for establishing a technate.

For the Americans that did not represent a problem since their outlook was regional and their goals were limited to offering American people unrestrained consumerism in a form which later on, although under a distorted price system, was offered to them in the 50's and 60's. To the defense of Technocracy Inc, it must be stressed that they, for example in the excellent article "The ecology of man" [1948] [35] stressed the environmental problems almost 20 years before "Silent spring" [31] was pub-

lished. Nevertheless, the point of this article is not to serve as a polemic against the orthodox technocrats, but to serve as the basis for a discussion about a new outlook for the technocratic movement - namely, a planetary outlook.

But let us first return to what I dare to call the deviation of continentalism, and some of the hampering effects it has historically put on the technocratic movement.

For example, only citizens of the North American states have ever been eligible for membership in Technocracy Incorporated. That organisation has historically had it's largest supporter base in the western states of the USA and the western provinces of Canada, but has (obviously) made a few attempts to even spread to Central America or the Caribbean.

N.E.T. on the other hand, made an early decision to resign from any limitations on national citizenship in building up it's membership base. For example the current director of N.E.T., Mansel Ismay [2006-] is an Australian citizen. We have noticed some interest in our organisation in Indonesia, India, Africa, the Arab world and South America, and we are open to individuals of all nationalities as members of the movement.

The noun "European" in the movement's name refers not to the nationality of the individuals composing the movement, but to the fact that the prime object of our movement is to analyse the energy qualifications of Europe to found a sustainable community on its soil (the European technate).

Of course, we are Pan-European in the essence that the chief result of our work would be a unified Europe, not as much as a continent, but as a common distribution system encompassing the area considered as optimal in our calculations. But that does

not necessite continentalism or disregard of the outside world.

On the contrary, the road to isolate the technate from the outside world would do little to prevent environmental problems outside of, or inside, the sphere of the technate. Pollution and global environmental challenges know no borders, and would undoubtedly affect the life quality of the citizens of the European technate.

Also, social problems such as small scale warfare, give result to streams of refugees, streams of drugs, and more ecologic devastation. That in it's turn tends to lead to regional disasters, which left unchecked, could create the domino effect. All this with continentalist technate arrogantly pursuing it's own benefits, not at the expense of the world, but not at it's service either.

When we live in a world where it stands clear today that the planetary ecosystem forms a fragile web which is in danger of collapsing, it is almost an obligation for any aware movement, especially one that is boasting to have a holistic overview of the problems facing the Earth, to engage in the struggle for a sound, dynamic and diverse ecology.

When it stays clear that same movement (N.E.T.) has parted itself from the traditional, orthodox branch of technocracy in other issues which are of at least the same importance, like the proposal of the proto-technate, the holonic approach and the introduction of social sciences into technocracy, it seems quite strange that we, while rhetorically speaking about the state of the world, should pursue petty continentalism, as if Europe was an ecologically separable entity.

Arguments against an active involvement of N.E.T. - or the

European technate - in crises outside of Europe are mainly unified to two stratas.

1. The first is the notion that because orthodox technocracy stipulates continentalism, then continentalism we should have. The first sentence is correct, but the conclusion is not a necessity. In the extreme variant, advocated by the orthodox movement Technocracy Now, it states that N.E.T. should give up promoting technocracy in European context and instead promote North American technocracy in Europe. That is a pure example of what blind, in words pure technocracy, in practice anti-technocratic zeal, could result in. European technocrats should not make decisions based on seventy-year-old books, but after what they could observe as the state of the globe.

2. The second argument states that because of historical European imperialism and recently failed military interventions in the third world, the European technate could empirically see that attempts to engage outside of it's own territory would prove futile, self-defeating and leading to results contrary to the original intention.

That is a profoundly a defeatist argument, and violates all notions of the responsibility which N.E.T. must claim if it should represent a serious alternative to the current order of things. To not realise that we live in a global world is understandable if we claim to represent a supranational continentalist movement. But it is completely unjustifiable if we are aware of the fact that

we live on one planet and yet chose to pursue continenalism in practice.

There are many reasons why imperialism exists today, but most often they involve energy politics and the control of raw materials, sometimes deluded by partially sincere ideological deviations, but in fact motivated by corporate supremacy. Obviously, although the risk for misuse and even atrocities might exist as in all of history, the technate leaps far less risk of being involved in a war of resource control, or in kleptocratic aid.

Instead, I will raise a contrary claim, and at the same time return to the original issue on what it should mean to be a European technocrat of the early third millennium. It stands profoundly clear that we all have an individual responsibility over how our world should look like, over its ecosystem, and the quality of life in general.

2.3 More than materialism

The basic component of society, and its main agent, is the individual.

The basic aim of any society from the technocratic perspective should be to provide the individual with food, shelter, love, recognition and self-realisation, akin to Maslow's utilitarianism. We could define these five needs rationally and empirically by observations but we must realise that they stem not from the cold rationality of science, but from basic empathy and care of - in this case - another human being. This basic relationship between empathy and action could be stressed and questioned

by dire tests during hardships, but it stands clear that the human being is basically an empathic being. It lies in its nature - except for a few tragic exceptions.

Empathy is desirable because it increases the likeliness of survival and decreases suffering, as well as strengthens public actions to better the lives of the individuals by providing the legitimisation of actions which otherwise, from a purely egoistic perspective, would be undesirable.

Even an egoistic individual though, if he/she is honest, would recognise that mutual benefit is derived from an environment which is based on empathy and non-violence. That environment could probably never be based on pure rational egoism since a philosophic ideology cannot treat the fact that those in poverty have the same ability to suffer like those fortunate enough to be born in plenty.

Let us not talk about philosophical ideals, which altruism and egoism ultimately are, but instead conclude that we, human beings, have a capacity to love each other, and value life. A quality which is spurred by actions which relieves us from the need of first and foremost fending for ourselves in scarcity.

We could indeed see that the ideals of technocracy, based on equal access to the productive capacity of a functional area, derived from empathy and concern for other human beings. Therefore, we should not scorn that sentimentality, or deny it, but embrace it.

One of the profound problems which we have today is the ignorance and apathy of the population in relation to what is needed to be done in order to restore a dynamic equilibrium to our planet. It is unclear why that factor exists in developed

societies, but one major factor could be the ideological indoctrination through the engineered environment of consumerism, which reduces the individual to an agent whose identity is designed by his/her consumption habits.

I am not, of course, attacking the individual for the qualities that have been given to him/her through upbringing by the survival mechanism of the current western civilisation in trying to keep the equilibruim of scarcity. He/she is not responsible for doing what people always did, namely, adapted to the social circumstances of their surroundings.

What I am instead proposing, is that we should make it clear that the social contract of the third millennium requires not only privilegies, but duties as well. The duties would not be to pay taxes, serve in warfare or march in order holding up portraits with faces of the leaders. Instead, the duties would be to embrace and salvage the empathic qualities of the being, and manifesting them.

People of the European technate - the new Europeans - should not find pride in their material standard of life, in the size of the European technate or in any supposed racial or ethnic superiority. Such superficialities are in the best case irrelevant and in the worst case hazardous for the well-being of the planet.

Instead, the new European people should excel at promoting a new European dream, a dream of active involvement and engagement for the planet and all life on it, of course together with people from other parts of the world.

Of course, not all individuals of the European technate would be able or willing to contribute to that vision, either because of already prevailing ideological or idealistic preferences, or be-

cause of a severe disdain of any type of meta-values composing a society. A strong society does not necessite that all individuals conform to the same code of being, and could survive with a sub-community of dissenters. Therefore, repression against individuals who dissent from the new European dream is not only running contrary to the values I am advocating now, but is also unnecessary and dogmatic.

With that said, I would like to put forth some proposals intended for unifying the programme of technocracy with strong values of empathy, concern, love and respect.

- I propose that we engage socially, and that, when we have the appropriate resources at our disposal, we create the roads to channel that engagement into necessary work for the global ecologic system and for all forms of life on the planet.
- I propose that we start programmes to send the youth on mandatory volunteer work in Africa, the Caribbean, the South Pacific, the Taiga, and the Arctic.
- I propose that we realise that we are empathic beings, not robots, and that passion is needed in order to realise the technocratic visions.
- We must fully realise that the deviations of continentalism and consumerism runs contrary to any of the planet constructive viewpoint, and disdain all aspects of our design which may limit ourselves in our scope of visions to put forth solutions to the world problems that are becoming more and more acute each day.

- Consumerist continentalism must go the way.
- Empathic 'ecologism' is more adequate to face the challenges of the third millennium.

Part II

Economics

Chapter 3

Energy Accounting

Enrique Lescure

The subject of this article is energy accounting and its intentions are to offer a comprehensive description of the economic distribution system in the technate, its differences from the price system and the different aspects of the system. Due to a lack of literature covering the basic parts of technocracy, there was and still is a profound need for articles further investigating energy accounting as well as other aspects of technocratic design.

3.1 Scarcity and Abundance

Before we start investigating energy accounting, we must understand its premises. The foundation of mainstream economics consists of five postulates, based around a theory that all resources are finite or "scarce", while human will to consume them is infinite. This theory is largely unsubstantiated, but without it, it would have been impossible for economists to calculate anything.

Technocrats, on the other hand, recognise that while it is indeed a profound fact that scarcity could exist and that a price system under such conditions is one type of solution to that problem, there do exist situations where abundance could arise. Of course, our premise is different than that of economists.

Instead of assuming that human want is infinite (one could very well still do it), and thus make scarcity inevitable, we stress the fact that human ability to consume is limited to the conditions of his/her body. Human wants might be infinite, but the human ability to fulfil these wants is very finite. We are not proposing a counter-postulate of "inevitable abundance", but rather putting forward a more in-depth analysis of scarcity and abundance.

Abundance arises when an infrastructural system is able to meet the human capacity of consumption while human labor input in the consumption-generating sectors (agriculture, industrial production and so forth) is diminishing. This process is a result of technological progress. The problems with abundance is twofold. Firstly, it makes it harder to calculate prices. Secondly, it leads (under a total free market economy with minimal

interventionism) to prices which are diminished to the point where the producers cannot simply uphold their production.

The Price System or "Exchange Accounting" The price system could also be called "exchange accounting", since all systems involving "exchange" of goods and services, from primitive barter systems and gift economics, to the advanced globalised economy which we have today, are based upon prices which are adjusted according to supply and demand.

If we assume two Egyptian subjects 4 000 years ago, we could construct a hypothetical price system not involving monetary exchange units. We say that the first of the peasants, A, desires a good, x, which the other peasant, B, is in possession of. A, in his/her turn, is in possession of an unspecified number of good y, which B is desiring.

In this hypothesis, the price will be in correlation of the point where each of the persons involved in the exchange finds it suitable to trade. We assume that both wants the good which the other one possess, and that they will exchange to the point where each of them is satisfied. The exchange doesn't need to be equal, since the deal would be subject to the individual demand of each person involved in the exchange.

More recently, money was started to being used, because it simplified exchange and made it more socially secure to trade, due to the fact that money A) is not a good of sustenance, and B) is permanent in nature. The value represented by money is of course also dependent on its relative scarcity in relation to the amount of persons involved in the given market.

The problems with exchange accounting are many. Now we should not discuss barter, since it would be by all defini-

tions impossible to uphold a modern technological system with advanced factories and an advanced, integrated infrastructure through barter. Instead, we should focus on the problems with monetary exchange.

Money is possible to accumulate. That is a function of its role as a good which is not used for anything else than exchange. Of course, this is not a problem, since it allows capital investments and economic growth, making technological progress possible. At the same time, it is encouraging inequalities which have created income disparities where four fifths of a given national population in a developed country has access to 20% of the national resources, while the one fifth left would have access to 80% of the resources.

That represents an inefficiency, because the ability to consume is thwarted by the bottlenecks known as the specific privileges in access to the means of production granted to the social groups with most accumulated capital.

Moreover, exchange accounting requires everyone to participate in the process of production, whether as an investor or as an employee. Under a process of automatisation, a lot of workplaces are disappearing. Historically speaking, new workplaces have often been created. Industry supplemented agriculture when the efficiency of agriculture led to lower employment in that area, and the service sector is today supplementing industry in most developed nations, something which the original technocrats failed to predict. But as automatisation increases, job creation in the future under the price system would take more and more interventionist measures as well as intentional creation of market failures to bolster jobs, including subventions

of small companies.

The greatest problem with the modern price system of exchange accounting is that it is based on eternal exponential growth in order to secure the well-being of the citizens. Hence, environmental foot-prints and over-exploitment of natural habitats become serious problems which eventually could devastate a lot of the planet's ecosystems. First, when something is made artificially scarce by the use of property rights, or naturally scarce because of exploitment, the price system could react and make it valuable.

One could of course try to impose regulations of the price systems, but problems are seldom solved at the top but rather on the bottom. Moreover, regulations are most often imposed to "solve market imperfections" which means that the state, with subsidies and taxes, are working to make the fruits of the production more scarce they are. That could hold together the price system, but at the cost of a lower standard of life and more inefficiency than needed.

We, technocrats, propose an alternative to "exchange accounting", namely, "energy accounting". So let us look up what energy accounting is.

3.2 Energy Accounting or "The Distribution System"

To have general energy accounting imposed upon a given economy, three conditions must be met. There must be enough

resource diversity to support a self-sustaining system without the need for exchanging goods and services with the rest of the world; this system must be technologically developed so it can utilise its resources more efficiently than any existing competitor; it would need to have personnel properly educated in managing the system at its disposal. Without these three preconditions fulfilled, a technate cannot be established. Of course, energy accounting would, in a partial, primitive version, be existent in a proto-technate (an expanding network of eco-units run by technocratic principles).

Energy accounting is not based upon the buying or selling of goods and services on a free market. Instead, it is based on interaction between the production system in its whole and the individual consumer. It is not based upon the exchange of property either, since the resources at hand for each individual would not change with transfers of the energy units to the technate.

First, according to the traditional technocratic design, every individual is granted an equal share of access to the production capacity of the technate. This division of access is made according to a very simple equation. The entire production capacity of the technate during a given period (which must be determinable in length), is divided according to the number of users the technate has. Thus, no individual and no groups of individuals would "own" the means of production in themselves, but the fruits of the production capacity would be under usership of the individuals who are users of the technate. These usership rights could neither be sold, bought or compromised except for in cases of emigration.

The usership rights do not correspond to "real resources" but

rather to the production of consumer items and services. Hence, cars, computers and other machinery is accounted for as parts of the technate. The cost of using them is corresponding to the electricity usage.

The usership right is a part of the social contract which is the technate. It is physically manifested through an energy certificate. The available capacity is divided into energy units, which could also be called energy credits, although it might be misleading. Why? Because the units, since they most correspond to the available consumption capacity in the technate during a given time period (minus, of course, the usage during a given period), would not be possible to save over that period. Instead, the certificate will be recharged with a new share corresponding to the new total production capacity of the technate.

Energy units could not be transferred between individuals.

When an individual is using his/her energy certificate, the energy units correspondent to the energy cost in production are derived from his/her certificate for the remainder of the time period. Yet, after usage, the energy units cease to exist. They are only in function so that the technate should be able to track demand and adapt the production after the desires of the users. It is thus neither a planned economy nor a market economy, but an interactive economy. The is the sovereign over its income. How does energy accounting affect the socio-econoic situation of the individual? Since the technate isn't a price system and is self-sustaining, it does not have any profit incentives, or any incentives to tax its users. Neither any affiliated democratic bodies, whether in the form of traditional nation-states which are members of the technate, or autonomous direct-democratic

communes would have any incentives or opportunities to tax the individual.

In developed countries, that would represent an increase of real disposable income with 25-50%.

There would be no more debts, since costs are determined for usage and not for the acquirance of property. Hence, young people and couples would never need to be compelled to fear for the future because of debts over education and housing.

The technate, being self-sustainable and in abundance, would provide everyone of its users with free healthcare, education, elderly-care and travelling.

Last but not least, since the technate would have full overview over its resource usage and will always manage to adapt production to consumption, it could also compensate the environment a lot better. With higher energy efficiency and better usage of resources, people could always be certain that efficiency increases in environmental sustainability also would increase their standard of life.

Potential Drawbacks Even if the social contract of the technate states that its users, voluntarily accepting the "Social contract of the third Millennium", would work a minimum amount of hours within the technate, thus reducing the overall workhours, the lack of monetary income could potentially lead to efficiency losses and environmental degradation due to insufficient motivation of the personnel. This could be partially solved by instituting a reward system, make the distribution system semi-flat instead of completely flat or make all jobs more enjoyable.

Also, if that is not the case, the lack of exclusive property rights could lead to abuse of technology and environment, thus

creating a quality of products below sustenance for the users. Some personal responsibility is thus most likely needed.

Transitory Phase We must remember that energy accounting is a system which has never been empirically tried out within an acceptable context. Therefore, we could today never be certain what effects it would have and how it will affect the socio-economic situation in Europe. As scientists, we must be given opportunity to test out the system and remedy some of the unintentional ills it may put over Europe, before aiming to unleash it fully. Even if energy accounting in its present form proves to be sufficient, it would still be a hazardous process to implement it before testing it out first.

One arena to test it out might be in the form of a prototechnate, namely a network of inter-changing eco-cooperatives aiming to become both automated and self-sufficient.

We would also need a new form of calculation software as well as an own internal computer network to handle distribution. One could expect that the experimental forms of energy accounting at the beginning will only take care of very simple tasks, before upgrading by experience and natural evolution.

Still, it stands quite clear that we are in desperate need of an alternative to an current economic system which cannot stop its own self-suffocation. Energy accounting as a theory is more developed than ParEcon or time-unit accounting, and less based on "human nature". In fact, people may be as selfish and greedy as possible, and yet, energy accounting would offer a compelling alternative to the current state for them.

Chapter 4

Energy Credits, Labour Credits and Money

Dr. Andrew Wallace BEng(hons) EurIng PhD

Some people may see Energy Credits as the same as money or Labour Credits. The author intends that this article should have the purpose of analysing Energy Credits, Labour Credits and money and, thereby, show that they do not equate to each other.

4.1 Introduction

A dictionary definition of the word "same" gives:

> 1a: resembling in every relevant respect b: conforming in every respect b: used with as 2a: being one without addition, change, or discontinuance : identical b: being the one under discussion or already referred to 3: corresponding so closely as to be indistinguishable 4: equal in size, shape, value, or importance — usually used with the or a demonstrative (as that, those) in all senses [10]

1a forms the important part of that definition for this article. For us to consider money or Labour Credits as the same as Energy Credits they must have **relevant characteristic in common**. This article argues that all three do not have any relevant characteristics in common and, therefore, can not equate to one another.

The first part of this article looks at Energy Credits and their characteristics. Then the article looks at money and its characteristics and compares them with Energy Credits. The final part looks at Labour Credits and compares the characteristic of Labour Credits with those of Energy Credits before the final part of this article; the conclusion and summary.

4.2 Energy Credits

Energy Credits forms part of a resource allocation system. In such a system, people use Energy Credits to allocate parts of the system to the production of goods[20, 6, 14]. We have resources, production and goods people want. We take the resources move

Person	Amount	ECs
1	3	3
2	5	5
3	6	4
4	3	3
5	7	7
6	8	8
7	2	2
8	9	9
9	1	1
10	6	6

Table 4.1: Example 1.

them to production and produce the good needed. That takes energy to do, so we can measure the production capacity in terms of energy. We can then divide that up equally among the citizens. Those citizens can then allocate production capacity to the production of goods. Thus, the representation of production capacity exemplifies one major and relevant characteristic of Energy Credits (ECs). This also means that we cannot save Energy Credits as we cannot use production capacity not used in one accounting period in another accounting period, this then exemplifies another relevant characteristic of Energy Credits.

In Example 1, If we have a production capacity of 100 units at 1 energy unit each and 10 citizens each would get 10 ECs each. Then say we have the allocations given in table 4.1 (each person ordering a certain amount of goods) for a given account-

Person	Amount	ECs
1	3	1.5
2	5	2.5
3	4	2
4	3	1.5
5	7	3.5
6	8	4
7	2	1
8	9	4.5
9	1	0.5
10	6	3

Table 4.2: Example 2.

ing period (say each year).

That means we have a capacity of 100 units and produced 47 units.

Now let's say we increase efficiency so each item takes half the amount of energy as it did before then we would have the situation given in table 4.2.

Same amount of goods but people just spend less energy credits and we still produce 47 goods.

Now what happens if we increase capacity to 200 units each taking 1 energy unit to produce? Now each citizen will have 20 ECs so we have the following resource allocation given in table 4.3.

Same amount of goods produced and the same amount of ECs spent.

Person	Amount	ECs
1	3	3
2	5	5
3	4	4
4	3	3
5	7	7
6	8	8
7	2	2
8	9	9
9	1	1
10	6	6

Table 4.3: Example 3.

Why? Because this is a resource allocations system where the people allocate the resources to produce the items they need. In a sense, it doesn't matter how much ECs each person needs to produce the goods so long as people have enough ECs to produce the goods they need. Thus, we can say an association with the physical system forms another important and relevant characteristic of Energy Credits.

4.3 Money

Money has the characteristics of a certificate of debt. We have a system of money called a fiat system.[11]. In such a system banks issue money, in the form of loans, which they create from

nothing, often creating eight to ten times the amount of money that they actually hold. Thus, this forms an important and relevant characteristic of money. One that differs money from Energy Credits as Energy credits represent production capacity not debt. You can save money from year to year. People can achieve this either through depositing their money in a bank or similar institution or simply through hording printed money. This significant and relevant characteristic of money differs sharply from Energy Credits as we cannot save Energy Credits. If we do not use the production capacity in a given accounting period, we cannot save that capacity and use it in the following accounting period. For example, if we can only produce 100 goods in a year but we only produce 80 we cannot then produce 120 goods the following year as our production capacity still remains at 100 units and no more. We then lose the capacity not used. This problem occurs mainly because we currently do not have efficient ways of storing energy produced so for example when electrical energy is made at its source (a power plant) it also has to be used on the other end (production facility).

As energy credits do not share the same characteristics as money they do not equate to one another.

4.4 Labour Credits

In a Labour Credit system, workers receive credits for the time that they put into the work they undertake. In a typical system, a person would receive one credit for each hour of labour and

goods would cost a certain amount of Labour Credits depending on how much Labour went into producing the item. There exists variations of this system where the amount of Labour Credits might vary, for example, depending on the desirability of the task where the more desirable task has a lower credit value[16]. The idea behind labour credits has to do with one person's labour equalling another persons labour so that if one person worked for an hour they should have the ability to exchange the hours labour for another persons labour[34].

The Twin Oaks community in the US exemplifies a community that has successfully implemented a labour credit system[23].

The association between labour and the amount of credits issued forms an important and relevant characteristic of labour Credits. This differs Labour Credits from both money and Energy Credits. The amount of money a person receives in a money system does not depend on the amount of labour a person has put into a job and we can find many examples in modern society of people earning more money than others despite putting in similar amounts of time. In an Energy Credit system the amount of Energy Credits a person receives also has no relation to the amount of work a person has put into a job as each person receives an equal amount of Energy Credits dependent on the production capacity only.

Like money, people can save Labour Credits which again differs Labour Credits from Energy credits. Conclusion

For us to consider two or more things as the same they much have all relevant characteristics in common, by definition. Money, Labour Credits and Energy Credits all have different relevant characteristics.

We can save both money and Labour Credits but not Energy Credits. We can make money up out of nothing but not Labour and Energy Credits. We can see money as a certificate of debt but not Labour nor Energy Credits. Labour Credits have a relationship to the amount of work under taken but money and Energy Credits do not. Both Energy and Labour Credits have connections to reality but money does not. Therefore, it follows that money, Labour Credits and Energy Credits do not equate to each other and we cannot rationally consider them the same.

4.5 Summary

This article first looks at Energy Credits and their characteristics. Then it looks at Money and Labour Credits. This article then shows that the relevant characteristics of the three do not equate to each other. The article then concludes as the three do not have relevant characteristics in common, by definition, we cannot consider them the same.

Chapter 5

Sustainability and Society

Dr. Andrew Wallace BEng(hons) EurIng PhD

This article argues that our current socioeconomic system has a unsustainable nature and thus we need to change to an alternative system if we wish to maintain a good standard of living. The article then presents technocracy as one such alternative.

5.1 Introduction

We, as a society, have a need for sustainability. People in the industrialised World today would find it hard to escape references to global warming and climate change [8]. Our society faces problems associated with peak oil and the potential effects of a decline in oil production [15]. Our society has a high ecological foot print [28] and our way of life has an impact on not only our local environment but on the eco system as a whole, effecting the rain forests and potentially causing the extinction [12] of may of the species that inhabit the Earth with us. Scientists have shown that our current society and our current way of life gobbles up our Earth and its resources [7], going beyond what our planet can coupe with. Thus, we have a need for changing our current way of doing things if we wish to have a hi-tech society so that we don't destroy our Earth; we have a need for a sustainable society [18].

But what do we mean; a sustainable society? We could see sustainability as keeping our current society running. We could hope that we can develop new technologies that will enable use to maintain our economic growth while protecting the planet. We could encourage new initiatives to decrease our carbon emissions, for example.

However, in this article the author looks at what sustainability actually means; why our current system has a fundamental unsustainable nature; and what characteristics a sustainable society would have.

"Sustainability"; what does that mean?

If we look for a definition of the word "Sustainability" we get

something like this:

> 1: capable of being sustained
> 2 a: of, relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged <sustainable techniques> <sustainable agriculture> b: of or relating to a lifestyle involving the use of sustainable methods <sustainable society> ? sus·tain·abil·i·ty [10]

In other words, do what we need to do today whilst maintaining the ability for people in the future to do what they need to do i.e. keep things going.

We could now ask ourselves the following question; does what we do today have the property of sustainability? This article argues that our current socioeconomic system does not have such a property.

5.2 The fundamental unsustainablity of our current system

Our current socioeconomic system has a certain property that the whole system depends on; economic growth [30]. Economic growth makes the system unsustainable [18]. The reason for that lies with the finite nature of our World and its resources. Lets just look at one aspect of economic growth; people.

As our economy grows we need more and more people to run the economy. More and more people to buy goods. More

and more people to produce the goods. However, the more and more people we have the more and more land we need to house them and provide work, recreation, and other places for them. We need more and more roads so they can drive more and more cars. More and more planes so they can fly more and more people around our planet. And the more and more people we have the more and more waste we produce. The more and more land fill sites we need. And so on – more and more.

Take a look at our World from space. We live an a small rock spinning around a middle size star on the out rim of our galaxy. Almost everything the human race has ever done has occurred on this little planet. From all the wars we have fought to all the great things we have invented to all the relationships people have ever had; all have occurred here on Earth.

But our Earth only has so much land. So much resources and so much space we can live. If we keep growing, how long before we run out of places to grow food? Build houses? Drive our cars?

When we start to run out of the very things we need we start to come to a halt. No more growth if we have no more room to grow in. No more growth means no more economic growth and the end to our current socioeconomic system. Thus, our current way of doing things; our current socioeconomic system does not have the sustainability property. We cannot keep going as we have done so in the past.

So, if we cannot sustain our current socioeconomic system then what type of socioeconomic system can we sustain? How will that allows us to meet our needs and allow us to reach our potential?

The characteristics of a sustainable society

- From the forgoing we can see that a stable population would form one of the first characteristics of a sustainable society would have. We would need to keep the population at about the same level. No more exponential growth. That would mean that we would not have a economic system that needs growth to maintain itself.
- Another characteristic we could sum up as reducing our demands on the Earth. The less we need the less we need to produce and the less we take from the Earth. We can reduce our demand through reducing waste and increasing efficiency, thus getting more with less. Though building products that last and through matching our supply to our demands. No more producing things for profit, wasting resources as we go.
- Reuse forms another characteristic of a sustainable society. If we take what we have and use it again or use it for another purpose we save the need of having to produce another item. In doing so we can help cut back on our production and pollution.
- A sustainable society would also recycle as much as it can. This comes after reducing and reusing as it takes a bit more energy to recycle. Through putting back into the system things that people no longer have a use for we save the need of having to extract the resource from the Earth thus helping to reduce what we produce and the associated pollution.

5.3 Technocracy and sustainability

From the above the reader may begin to see that a sustainable society would not have the profit motive. The drive for profit would drive expansion as it does with today?s society. Thus, we would need to replace our capitalist free market economy. Technocracy [14] would form one such possible replacement.

A socioeconomic system run according to technocracy would have the sustainability property - as technocracy aims to maintain the highest standard of living for the longest time possible - as an inherent property of the system.

Technocracy achieves this sustainability through design and through the establishment of balance; balance between supply and demand; technology and ecology. Technocrats would design production to produce reusable and recyclable items; to minimise the energy and material requirements. Citizens would use energy credits to allocate energy to the production of goods and in doing so production would match supply. Technocracy would aim to maintain a stable population level through education and environmental design.

Technocracy can achieve a sustainable society as experts would manage the units of production, not for profit but only to produce what the people need, when they need it. They would design products suitable for sustainability while at the same time providing desirable products.

In the European system of technocracy proposed, experts would work on local goal orientated projects and only cooperate with other people at greater distances as and when needed. This would also help sustainability as it would minimise energy

needs through keeping things as local as possible. Directors at various levels would over see the projects to ensure they remain compatible with the goals of technocracy and to provide communications between the project members.

5.4 Summary

Our current socioeconomic system cannot keep going. It requires infinite growth with finite resources which the system cannot maintain. Sooner or later the system will fail. Thus, if we wish to maintain a good standard of living for people we have a need to evaluate and then move to an alternative system that does not depend on infinite growth. Technocracy presents one such alternative. Technocracy aims to maintain a high standard of living for as long as possible. Thus, sustainability become inbuilt in the system.

Chapter 6

Technate as a Network

Igor Srdoc
(Revised With Permission by Dr. Tatjana Rakar, 5 Oct 2007)

Currently there is a large pool of technocratic sources that cover topics from criticism of today's dominant social system (due to its incompatibility with modern productive capacity) to elaborate descriptions of operative plans of a working model functioning under technocracy. In spite of all this available information there is heavy lack of academic material that presents a transition from the current socioeconomic system to a technocratic one. The following article proposes a model that could be used for initialising the transitional phase towards a technate.

6.1 General Specifications

Before we begin some general definitions must be provided to give us clearer understanding of what goals this model aims to achieve. The concept of a Prototechnate [13] being used in the upcoming paragraphs refers to a distribution and service area which operates accoring to technocratic principles. Among these are generally considered the use of Energy Credits (instead of money), sustainable development (opposed to perpetual growth), production according to demand (not accoring to profit) and so on.[27]

Traditional technocrats claim that because we use machines and energetically rich natural sources (e.g. wood, coal, oil, gas, uranium) we have achieved a level of technological development that allows us a complete transformation of our social mechanism. They have set three prerequisites [33] if on a given geographical area there is:

- Enough potential in natural resources available for use,
- High technology that allows a transformation of resources into end products,
- Enough skilled workers who can operate said technological infrastructure

then a state of abundance can be achieved [27]. In other words, production capacity would reach such a level that all consumer needs and desires could be met. Technocrats claim that even though human desires may sometimes be infinite the ability to

satisfy these needs through the use of products and services in a 24-hour day is finite. Later on we shall see why these three assumptions are important to us in our implementation model.
Organisational Determinats

The implementation technique used in this model can be considered a bottom-up approach as the main actors are organisations also refered to in other technocratic literature as holons [13] which form a collaborative network with specific goals and characteristics. The organisations must be NPO's specialised in either production or services. As the organisation is non-profitable (but still makes profit) the only prerequisites applied are that the organisation and its resources are owned by everyone who work in the organisation and that the profits are not used for private matters, but rather for the fulfillment of this organisation's mission. Consequently, every member of this organisation owns exactly a percentage of the organisation and the wages that they receive reflect their working relationship with the organisation instead of their ownership over it. Even though they are owners of even shares of the organisation they cannot give or sell their part to anyone. The reasons for these rules count towards reducing the chances for exploitation and lighter transition to a full technate in which the purchasing power of all individuals varies much less than today [37]. The organisation itself and its members also benefit from such a system as there are more resources available for further investment into production and services as well as for higher wages.

Now we can sum up the important characteristics that these organisation hold which places them among membership cooperatives:

- Cooperative
- Non-profitable
- Self-governing
- Commonly owned
- Production and/or services
- Professional and/or voluntary

6.2 Network Functionality

So far we have explored the workings within individual building blocks of a technate, but in order to better understand this transitional model the interaction between single organisations has to be elucidated. For this purpose we will use the term 'network' which represents a technical, infomational and administrative entity that connects all organisations in the technate by providing them with universal operational principles and sufficient data regarding other organisations, consumers and the system as a whole.

While it would be possible (and sometimes even necessary) for organisations to acquire resources needed from outside the technate it will be shown that the network can provide a much more productive environment (which of course depends on many factors among which are also size and level of development of the technate itself).

The first benefit goes to the members of the organisations in the network as they can acquire at zero cost the products and services of all organisations in the network. Besides their regular wages they also have the aforementioned right as citizens of the technate, which they autoutomatically become by working for one of the member organisations. The second benefit applies for organisations which can acquire resources and energy from the network at no cost when producing for citizens of the technate.

This reduces their operational cost that would otherwise increse due to non-profitable production. It is made clear that the more resources and energy the technate has avaliable the better stability it can achieve and the less organisations have to concentrate on outside investment as well as dependance on the open market.

6.3 Distribution System

It is now clear that the technate aims for independance from a financially driven market while seeking to satisfy the needs and desires of its citizens. Even though there is no money involved in the transactions between the consumers and producers (and among producers themselves) technocrats have nevertheless envisioned a form of regulation in the distribution system. The term addressed was already mentioned in this article in the opening section where it was labeled as one of the basic principles of technocracy Energy Accounting. Technocracy, instead of money, uses Energy Credits which are used for distribution exclusively instead of exchange and measure energy available

for use instead of market value. Energy Accounting is a tracking system which depends on the technate's main informational database that maintains a continuous survey of all organisations, their products and services, available energy, resources, personel and infrastructure. This is required in order to calculate the productive capacity and distribute this potential to the citizens.

The traditional North American technocrats (Technocracy Incorporated, 2005) have envisioned that energy available should be the main and only determinant of consumption, but one has to keep in mind that this estimation is based on analysis from the first half of the 20^{th}century (and the productive potentials of that time) and solely on the landarea of the North American continent. In a situation when any of the other productive factors are scarce, they represent a limitator to the production capacity in spite of the technate being abundant in energy (e.g. we could have enough energy and resources at a moment in time, but if we lack appropriate infrastructure and sufficiently trained personel we are unable to achieve an abundance in products and services). Energy is the most convenient choice for a mean of distribution because it can be reduced to a common denominator (kilowatt-hour) no matter which of the many forms it is in (solar, fosil, electric, kinetic etc.). Resources and infrastructure are on the other hand rarely interchangable while for personel the rate depends on the complexity of the tasks at hand (although we can use workhours as the basic common denominator).

For our tranistional model where the technate most likely will not have an abundance in any of the given factors it does not seem appropriate to use Energy Accounting as a system of

distribution, but rather track the flow of energy as one of the productive factors. A technate in this early stage of development would require some other distributive method that could deliver products and services to the citizens according to their availability and demand, not according to some medium (money, Energy Credits) that could potentially hamper the distribution due to its incompatibility with the productive system. This of course does not exclude tracking of demand as it is represented by actual choices that the citizens make as consumers. Network's informational database should thus contain all the data that producers and consumers require in the process of distribution. Potential Fallbacks

Every model, even though it may have many positive aspects, surely has its weak points (or at least this is the position that we must adopt) and in order to make it as liable as possible we have to elucidate them. The most common query regarding technocracy is related to human motivation to work would a system that provides people with equal access to avaliable products and services motivate them to work well or to work at all? For the model proposed the answer to the second part of the question is already given as only those who are in a working relationship with a member organisation can become citizens of the technate. The organisations themselves manage their resources and staff (number of workers required, education, workhours, etc.) to achieve an optimal working environment. On the other hand, how to motivate the employees to work better and make an effort is a question for which the answer should be found in the domain of managment studies and practical experiences. Nevertheless, this is one advantage that this model has which

derives from its design and these are the free products that each citizen is entitled to (along to his/her regular wage).

This is where we come across another dilemma regarding this design's fuctionality. It seems that there is a guaranteed deficit under which each organisation in the network must operate to fulfill its obligations to the citizens. The deficit comes, obviously, from the free products and one could argue that this handicap could pose a serious threat to the financial and productive stability of the organisation, not to mention potential loss of market share and bancrupcy in the long run. These are all negative scenarios that would not benefit to the achievment of organisations' (and technate's) mission ? to provide its citizens with a wide variety of quality products and services.

In order to avoid such inconveniences, the organisations can limit the amount of resources they are going to devote to the technate, but in that case a minimum percentage should be set across the technate. As the scope of production increases and automation is introduced, more products can be removed from the market and distributed to the citizens. It is important to keep in mind what is the main mission of these cooperative organisations and that the only resources that travel into the private domain are wages and citizens' benefits (products and services). There is another method that the network uses to aid the organisations in their productive endevours and that is free use of energy and productive resources (as well as other productive factors). So in order to reduce the expences the technate should aim to include in its network as many raw material and energy producers (which are also cooperative organisations and operate under same principles as consumer products and service

organisations) as possible to progress closer to towards continuous abundance.

The most probable situation that one can imagine at the initial point of a technate is a state in which demand from citizens' side surpasses the current available supply of products and services. While the technate could operate by the principle 'firts come, first serve', under scarcity conditions the network could function with less problems since citizens may feel better motivated and consider the system more just if this basic principle is upgraded. If we assume that the technate has better chances for survival and that most people would agree that those who contribute more to the network should also receive more in return then in order to distribute the productive capacity there have to be certain factors in place. Since the relationship between citizens and organisations is a working one (instead of an ownership or investing one), work ? measured and represented objectively by workhours ? should be the main factor at hand. To avoid oversimplification, additinal factors (e.g. level of education, job hazard, etc.) must be applied (but we should leave this analysis for another article). Determining which factors should be used and with a quotient (added to the base of workhours done) of what amount should be done by experts from various fields such as economics, psychology, sociology, managment and many more to avoid a single-minded approach and provide the technologically most efficient solution. Using this kind of system we avoid the need for a medium of distribution for which we have already presented its negative aspects in this article.

6.4 Conclusion

The purpose of this article was to outline some basic characteristics of a model alternative to the traditional proposal for an immediate change from the current social system (also called the price system) to a technocratic one. It can be noted that this is not a comprehensive description nor a presentation from all angles, but an initial proposal with a critical problematization for its closing statement. In order to make the model theoretically viable and empirically applicable additional testing and peer review is called for. References

Part III

Energy

Chapter 7

Energy Input Labeling for Consumer Products

Mark Ciotola J.D.

The goal and scope of a project to develop an Energy Input Labeling (EIL) [32] program is discussed. Case studies involving a food product, retail product and service are described. A challenge to energy input labeling is identified and overcome by adoption of energy added input labeling rather than total energy input labeling. Next steps of the EIL project are reported including finalization of EIL standards and an outreach brochure.

The Energy Input Labeling (EIL) Project is one of several

new endeavors originating from the August 2005 North American Technocracy Conference held in British Columbia, Canada. The goal of the project is to study and develop a potential program in which producers of consumer goods and services reliably calculate energy inputs into their products and then report that information on their product labels.

EIL reports energy inputs, but not energy content. Energy inputs refer to how much energy was used to produce a product. Energy content refers to how much energy a product presently contains. These quantities can be quite different from each other. The same energy might have been used to mine a cubic meter of lead as uranium. So then, the energy inputs for both of those metals would be the same in this hypothetical example even though uranium typically contains much more energy than lead.

1. Several case studies have been conducted. One such case study involved a local bakery. This is an important example, because baked goods are extensively consumed and are typically still made in North America. In fact, bread and other baked goods are the most fundamental and indispensable products of western civilization.

2. Another case study involved printing and assembling a commercially available book. Nonprofit organizations are some of the potential early adopters of EIL, and many of them publish booklets. In fact, this case study will help Technocracy, Inc. to adopt EIL for its own publications. Numerous commercial manufacturers also include instruc-

tion booklets with their products, so they can perform a proof-of-concept for EIL with their booklets.

3. A third case study involved a computer database consulting service. Services can be energy input labeled, so it was important to include a service-oriented case study. Of course, manufactured goods also involve labor, but the calculations are more direct for labor used to produce services.

Onsite visits and interviews were utilized to gather data regarding equipment usage, batch times and other parameters. Data gathered from the case studies has been inserted into our templates to create initial energy input figures.

The project team utilized the case studies to develop methods for gathering data and calculations to determine energy inputs. The project team has developed initial templates and standards for calculating direct energy added, distinguishing between single versus batch production and multiple product lines. These templates and standards are in the form of electronic spreadsheets and can be used by any business or organization.

A significant challenge has been how to develop a method that comprehensively and accurately measures energy inputs, yet is simple enough for small businesses to enthusiastically adopt. After an initial investigation, we changed our methodology to calculate and label the energy added inputs rather than the total energy inputs to produce a good or service.

Energy added includes electrical power, gas or other energy used by the producer to power production machinery such as

lathes, ovens and printing presses. It can also include the calories burned by the bodies of humans during production labor. Air conditioning, ventilation and lighting energy can be included if such can be measured and allocated to units of product. Producers can themselves measure energy added, so that they can have strong confidence in that measurement and are more likely to label it. Note that our project only considers physical units of energy used such as: Joules, BTUs, etc but not their monetary cost.

Conversely, total energy includes upstream energy inputs utilized to produce raw materials such as wood, flour and paper. Producers of consumer products typically purchase upstream inputs from outside vendors, so energy inputs of upstream parts and raw materials are typically unknown. Likewise, total energy would also include energy inputs required for laborer housing, facilities, government-provided infrastructure and numerous other inputs that cannot be readily allocated to a particular producer. Rough estimates of total energy inputs are possible, but the margin of error would be large until significantly improved data and calculation methods exist. In the future, as more producers adopt energy labeling and as methods improve, it may be possible to deduce accurate total energy required inputs by summing up the energy added by each firm in the production chain.

To encourage uniformity in EIL, the project team drafted initial energy input labeling standards. A brochure has been developed for circulation to both consumers and producers. The project team has researched and developing a certification and monitoring process but may reserve these steps for a future

project. Project findings and materials will be included in a final report that will be submitted to Technocracy, Inc. by the end of 2007.

Part IV

Engineering

Chapter 8

Creating Life

Kim Lindgren

For the longest time it has been the dream of many to create an artificial life, an artificial intelligence. It has been the subject of countless discussions and films. By some it is seen as an opportunity to advance our knowledge, and explore areas that are unreachable to man, by others as an apocalypse waiting to happen.

For me, it is the best way for us to learn about ourselves. In order to create artificial life, we need first to understand what it is that we want to replicate.

8.1 The human subroutine

There are many active projects with the goal to create Artificial Intelligence. Many of these projects are impressive, but they all lack in some areas:

- All bots (I use bots as an example, since there are several in use today, and many that anyone can talk to) in themselves act differently. Mainly because their creators designed them differently. But all bots running on the same code are the same, therefore; they lack personality. They should be able to develop individually.
- Flexibility: At the moment, AI is limited in the way that it can not think of things on its own. Every "thought" it expresses originates from a different source, for example: a user, or the creator. This behaviour can be simulated by using keywords or randomization to access certain predefined behaviour. True AI should be able to think on its own.
- Flaws: As in human flaws, not flaws in the design of AI. No human is perfect, and thus AI can never truly act human unless it has the same flaws as humans.

When creating AI, our goal should be to get rid of the "A". As long as our goal is to create Artificial Intelligence, that is exactly what we will get: Artificial Intelligence.

Humans have the tendency to glorify themselves. Therefore our flaws are never included in the code. Our goal should be

to recreate intelligence, not the feeling of it. Of course, the meaning of Flaw could be discussed. What I am referring to are personality traits that are generally regarded as illogical and useless in modern society, such as: nervosity, anxiety and stress.

Depending on your convictions, the word could be taken to even higher levels, and incorporate every single emotion. However, I would not go to such extreme lengths, since I believe that many traits are highly significant to the stability of our world. No mater how you see it, the behaviour of AI should be indistinguishable from real humans, if we ever expect it to gain popularity and wide-spread use in any area that requires communication with actual people.

8.2 Infinite thought in infinite combination

One of the biggest obstacles in obtaining full AI is the raw computing power needed. We simply do not have computers that can match the speed of the human brain, and our current technology does not allow the creation of such machines (that are not ridiculously large). This is not to say that it is impossible, after all, our brain works so why shouldn't a computer be able to do the same?

In my opinion, the best way to achieve full AI is to first understand our own brain and then replicate it. Unlike the transistors of the computer, the synapses in the brain can be more than just active and passive (0 and 1).

A synapse consists of the ends of two nerve cells facing each other, with a gap that is about 20 nm wide. When a nerve impulse reaches the post-synaptic nerve-terminal (the first nerve cell) a neurotransmitter is rapidly secreted though a process known as exocytosis (This is refering to Chemical synapses, small vesicles containing the neurotransmitter merge with the cell membrane, releasing it into the gap between the cells), which is then intercepted by receptors on the post-synaptic cell. When the neurotransmitter is intercepted, the cell opens ion-channels releasing ions in or out of the cell, changing its transmembrane potential (the difference in potential across the cells membrane), this change is called a post-synaptic potential. Depending on which neurotransmitter is released the effect to the post-synaptic potential can be eigter exitatory or inhibitory (Differently charged ions can be released). ACh (Acetylcholine) can be used as an example of an exitatory neurotransmitter and GABA (Gamma-aminobutyric acid) as an inhibitory neurotransmitter.

Furthermore, to create full AI, I believe that we must first mimic the behaviour of synapses in the brain and then divide the computers system into something equivalent to the lobes of the brain.

8.3 A virtual world

A possibly useful experiment on our way to the form of brain mimicking that I wrote about in the previous section, would be to create a virtual world, with very basic creatures that run

separately, but interact with each other. Every creature would be an individual process, but also tied to a server that handles and relays all information. Natural resources, such as trees and other plants (i.e. a source of food that means no killing of other creatures) would also be managed by the server. The server would represent the planet.

Image by Kim Lindgren In the virtual world, no process would directly communicate with another, they can only directly receive information from the server, which means that the server could be used to simulate different scenarios for the world. For example, one creature could turn blind and therefore no longer receive any "visual" information, thus giving it new boundaries and forcing it to act differently.

In this experiment, the individual processes could even be made to reproduce and create new processes that are slightly different from the previous ones, simulating the process of evolution. The server could be used to introduce new bits of code (to simulate mutation) under different circumstances, thus each new generation could be slightly different.

The creatures in the virtual world would be very basic, acting only on an equivalent to instinct, but when they are all combined the system would become quite advanced.

The server should be written to work effectively with system resources, preferably in a high level programming language, such as C or C++, but the creatures would have to be written in a scripting language so that they could re-write themselves (and reproduce), Python would be ideal for this task. A stable resource friendly Operative System would also have to be used, Linux, FreeBSD or Solaris would prove useful in that respect.

After this experiment is deemed successful the same principle could be used to imitate a human brain. Each creature would represent a brain cell and the server would in this case represent a lobe in the brain. Several servers would run simultaneously, preferably on individual machines, communicating with each other. When this method is used for this task, contrary to the creatures in the previous example, the cells could be written in the same programming language as the server, since braincells are (almost) never replaced.

When our technology advances to a high enough level the creatures/cells could be replaced by very small machines that mimic the behaviour of cells as well as possible. By combining these small machines in a way similar to that of the human brain we should be able to effectively mimic a complete human brain.

8.4 Can something created by humans be considered alive?

This is a strictly philosophical question. The answer will vary, depending on who you ask. My answer would however be: Yes!

It all boils down to your own personal mindset and definition of life. For example, religious people may define life as something created by a god, or perhaps something that originates from nature. Its also a matter of where you draw the line, for example: If we where to replace a part of a persons brain with a computer, without affecting his personality (just adding some extra "computing power"), would he still be alive? Most would

argue that he would be. In the same fashion, people that require a prostheses are considered alive by most.

It is hard to scientifically define life, but we can generally cut the criteria down to these characteristics:

Metabolism: Can produce energy and provide building blocks for itself by breaking down non-living material and decomposing organic material.

Growth: Living things can utilize available materials to add to themselves.

Adaptation: The ability to change in accordance to the environment. The ability to evolve.

Responds to stimuli: Living things can respond to stimulation, usually expressed by movement.

Reproduction: The ability to create new similar creatures.

I believe that we should be able to reprodude all of these conditions using technology (perhaps not at our current level though). If we where to think strictly in terms of using technology to build robots that are alive, nano-robots and chemicals (much like in an animal body) could be used to break down food into small components, that could then be used by similar nano-robots to add new components to the large robot. In the same way, nano-robots could be programmed to produce completely new robots (somewhat like gametes in an animal body).

In order to create artificial life, we could of course also combine organic and technological materials. Using "the best of

two worlds" would not only make the process much simpler, but might also result in a sturdier and more easily adapted living thing.

8.5 Creating Life

As I mentioned before, if we aim to fulfil the dream of creating the perfect AI and finally getting to know exactly which effects it will have on our society, we need first understand exactly what we are trying to mimic. We need to understand ourselves. Perhaps, rather than creating intelligence, we should aim at creating life?

Chapter 9

Holons and a Holonic Society

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(Revised With Permission by Samuel A. Falvo II, 14 Nov 2006)

The concept of a holon forms one of the central ideas proposed for forming a technate/proto-technate and even for the organisation of the N.E.T. itself. This article outlines what the term holon means, and how a holon could form the building block of a future society.

9.1 Holons

The word "holon" comes from the Greek "holos," meaning 'whole', and "-on," meaning 'part' [3]. The word aptly captures the duality of entities which are at once single, distinct entities, and at the same time parts of a more comprehensive whole. For example, a cell in your body falls under the holon category. Cell exists as a distinct, living entity; it has inputs, outputs, and a distinct cell wall defining its interface with the rest of the world. A cell, however, consists of smaller and more fundamental parts, such as RNA, DNA, mitochondria etc. Each component can be studied as a separate entity; however, each component can be broken down further - into molecules, atoms, and ultimately to quarks. This decomposition of cells is characteristic for a holonic organisation.

We can also go the other way, and see that cells group together with other cells to become organs. Organs, in turn, form parts of the human body. Here, we see that holonic organisation also supports composition as well.

We can find many other examples of this part-whole relationship in the world around us. Ants, for example, exhibit such characteristics [22, 21, 29, 2, 5]. We can study ants as separate entities in their own rights; but, they also form parts of a society. Trees and forests as well as people and cities form other examples. More artificial examples would include agents that have been used in Distributed Artificial Intelligence and even the humble sub routine in a program.

9.2 Characteristic of Holons and Holonic Systems

In addition to the part-whole characteristic, holons have a number of other characteristics:

1. Each holon can function autonomously. It means that each holon carries out its own activities without the direction of other holons; yet, it still forms a part of, and contributes to, the overall functioning of a larger system.

2. Holons naturally form distributed systems. This comes on from the autonomous attribute.

3. Each holon has a simple, singular task to perform and concentrates exclusively on that task. The system accomplishes larger scale tasks through the combination of a number of holons, either through combining them together to form a larger holon, or through cooperation or competition between holons.

4. Although holons function autonomously, their interaction with other holons may yield complex flows of information in order to achieve each interacting holon?s goals. Therefore, a holon must process and respond to in-bound data from external sources, as well as provide other holons with requested information.

5. As holons interact, the sum of their actions could become greater than the action of the individual holon. Some

examples could include ant hills, where a number of ants cooperate to construct a mound, yet no single ant would have the capability to achieve the construction individually. The construction of cities forms another example. The shapes of many of the world's cities were not the result of centralised planning. Nonetheless, the organisation and interaction of a number of people and organisations has resulted in some of the most spectacular cities on Earth, such as San Francisco, New York, Rome, and others. The Advantages of Holonic Systems

Holons are particularly well suited for complex and/or distributed systems [17, 19, 36, 1]. Some reasons follow:

- Scalability As each holon has the property of being autonomous, it can function with little or no knowledge of other holons. Thus, we can add additional holons to the system, depending on the system in question, without affecting the operation of the previously existing holons. As additional holons are contributed to the system, a coherent organisation will tend to form naturally, such as a hierarchy where higher-level, more abstract holons manage lower-level, more detail-oriented holons. Consider, as another example, any plant or animal, which starts as one cell, but which divides and grows to many cells, forming organs along the way.

- Robustness Robustness also results from the autonomous nature of a holon. Just as we can add holons, we can also remove them without, in general, affecting the functioning

of other holons or the system as a whole. For example: human body can lose many cells without even noticing it. It can even survive the loss of a substantial portion of the body, such as a limb.

- Simplicity of control As each holon has a simple, usually singular, task to accomplish, it only needs a simple control mechanism, which can be understood more easily when compared to a centralised control system.

9.3 Disadvantages of Holonic System

Distributed and autonomous holons, for all their advantages, also have some disadvantages compared to centralised mechanisms.

- Tragedy of the commons The autonomous attribute can lead holons to consume shared resources without consideration for others, and end up taking more than their fair share. This could limit the ability of other holons to work, and may even bring an end to the common resources. Example: a farmer allowing his cow to eat all the common grass, preventing other farmers from grazing their cattle.

- Losing their way We can see another problem with the autonomous attribute. Autonomous holons could conduct activities that do not contribute to the overall goal of the system. They could even conduct activities that are contrary to the overall goal. Cancer cells would form an ex-

ample of holons that have gone out of control and became a danger to the system as a whole.

The root cause of the first deficiency we can usually attribute to a lack of negative feedback in the holon?s operation. For example, if the farmer knew a priori of the impact the cow would have on the field, and therefore other farmers, he would take steps to alleviate the problem before it got out of hand. The farmer would need a bigger picture to achieve this insight. However, this leads to one possible solution, where a higher-level holon could administer lower-level holons. Not an ideal situation. It is preferred that the other farmers communicate with the offending farmer, so that issues are resolved locally and quickly.

We may, however, have diffculty understanding the cause for the latter deficiency, since there is a number of issues to consider. For instance, simple miscommunication or misunderstanding may result in an erroneous interpretation of the holon's goal. Indeed, scientists have traced most causes of genetic defects that, in a sense, we can consider as miscommunication in genetic programming of the cell. We could see another cause as the autonomous nature of the holon, which could deliberately decide to change its own goals. The "bait-and-switch" manoeuvre that con-artists and other petty criminals use exemplify this.

9.4 A Holonic Structure for N.E.T. and Future Technate

Peak oil could mean that future societies need to localise to reduce energy consumption, as future societies may well have less energy available than present-day societies. Climate change could mean that future societies may need a high level of co-operation to handle an increasingly hostile world. This could mean a social structure that has both the characteristic of being composed of parts and the characteristic of networking. This would represent a different form of organisation from our current national, centralised system. Holons represent a different approach towards governing systems that has the characteristic of being composed of parts. Thus, a holonic structure represents a potentially viable form for future society.

As a means of allowing this organisation, we propose the following holoarchy:

1. Individuals
2. Groups
3. Zones
4. Areas
5. Sectors
6. Proto-Technate, Technate, Network of European Technocrats (NET)

The author intends the proposed structure to form the foundations for a technate/proto-technate; but, as an experiment, it should also form the structure of NET. Thus, the top holon becomes not only the technate/proto-technate, but also NET.

Individuals form the basic building blocks of societies, and each individual has their own goals and objectives as well as skills and interests. Any social structure should take this into account. The author hopes that the holonic structure would allow people to utilise their interests and skills to achieve their own desires in such a way as to contribute to the whole structure.

To achieve this, individuals form interest groups, such as research, medical, and food production. Individuals who have skills and interests in common with a specific group could choose to join that group. However, not all groups would have specialised interests; some groups would have a more mixed membership. This would depend on the size of the group and the number of members (e.g., in the case of members of NET residing in a single town).

Groups maintain goals and monitor projects. The goals of any group should be compatibile with the overall goals of the technocracy. Likewise, the projects within the group should contribute, in some way, to the group and thus to the implementation of technocracy.

Some projects, of course, may turn out to be too large for a single group to undertake (e.g., repairing the Golden Gate bridge or the construction of an airplane). To deal with this, groups can form areas, where areas act in similar ways to groups. Instead of being composed of individuals, however, areas are comprised of groups (think of a consortium or standards organ-

isation, like OSI, OMG, and ANSI). Areas cooperate with each other to fulfil the goals defined for each area. Those goals, like the goals of groups, are compatibile with the goals of technocracy. And, of course, the projects run within areas will have similarity to the projects of groups in that they would also contribute to the goals of technocracy but on a larger scale.

Again, like areas, sectors form the next level up in the holoarchy and run larger projects. Areas compose sectors.

The technate/proto-technate or NET forms the final layer of the holoarchy. This layer runs large scale projects over the whole operational area of the technate and has goals in accordance with technocracy's goals.

Thus, the whole system becomes a gestalt - one composed of individual, goal orientated parts that use projects to achieve their goals. As each part lines up with other parts in the holoarchy, through cooperation, the system achieves the overall goals of the technate.

9.5 Control and Direction in the Holoarchy

As each group, area, or sector can act autonomously, the system has the potential to develop some problems, as noted above. Some of the holons could end up repeating work that other holons have conducted and other holons could conduct work that does not contribute to the whole.

To prevent such problems, we propose a hierarchical structure that lays on top of the holoarchy. This overlapping structure would have the following goals:

1. Maintain direction of the system

2. Act as a communications channel to facilitate cooperation between holons

3. Ensure efficient utilisation of resources, thus preventing unnecessary repetition of work

The proposed structure would follow the classic Technocracy, Inc. sequence structure with a board at the top which acts to direct the whole system. A number of functional sequences would then form under the board, with the director of each sequence being represented on the board. For example, the structure could have functional sequences for health, research, manufacturing, mining, recycling, energy, transportation and space.

Each sequence would have a sub-sequence for each sector. So, for example, the Sequence of Research would have a number of Sector Sequences of Research below it. Each sector sequence would then have area sub-sequences below it, and the area sequences would have group sub-sequences below it. Each sequence at each level would have a director. For example, the Sequences of Research would have a Director of the Sequence of Research and the various sector research sequences would have various Directors of Sector Sequences of Research and so on for areas and groups. We can see this as being analogous to a commercial company in present-day economic systems, where you have a Chief Technology Officer, Director of Research, with individual project directors below them.

This means that an individual would have membership both in a group and a sequence and, hopefully, will actively participate in a project.

9.6 Roles of Directors

Directors of each sequence have overall responsibility of ensuring that each holon contributes to the overall goal of technocracy. Thus, the directors at each level have to approve each project, and can cancel a project if that project has wandered away from the goals of technocracy. The director can also cancel a project if it is in conflict with another project; for example, if two holons attempted to do the same project. However, once a project has started, and so long as it remains compatible with the goals of technocracy, the director has no control over the project in keeping with the autonomous nature of the holon.

Each project would have a project manager. The project manager has the administrative responsibility of running the project, including the allocation of resources, time schedule, etc. The manager runs the project without any interference of the directors as long as the project remains within the goals.

For projects that involve cooperation or coordination between a number of holons, the holon director has the responsibility of ensuring communication with other holons. For example, within an area the Area Director must ensure that all holons have adequate communications in order to allow them to conduct their projects. Thus, the sequences act as a communications channel for each holon.

9.7 Goals

Goals become the most import attribute of the above structure. Goals give direction and purpose to the system as a whole.

Technocrats have the following top level goal:

The highest standard of living for the longest time possible.

To achieve this goal, sequences and holons may have other goals, but those other goals must contribute to the overall goal. For example, the Sequence of Research could have the goal of conducting an energy survey and may run one or more project to achieve that goal. However, the goal of the energy survey also contributes to the overall goal of technocracy in that it determines the the kind and quantity of resources available and the energy required to build a sustainable society that has a high standard of living.

Part V

Infrastructure

Chapter 10

A Proto-Technate

Dr. Andrew Wallace BEng(hons) EurIng PhD

A proto-technate can be considered to be a network of communities that exist within the current socioeconomic system but are internally run as a technate. That is, externally they interface with the wider society and use money, but internally, positions are filled by those who are most skilled and energy credits are used.

Each community is self-sufficient to some degree. That is, they can produce their own energy, food and manage their own waste. However, they are still integrated within the proto-technate and the proto-technate within the wider society so they are not isolated.

Each community would have a production capability of more

than just food. This production capability would be used to produce goods for the proto-technate and to sell to the wider society. Therefore, the proto-technate could also be seen as a business.

10.1 Establishing a Proto-Technate

Four things are needed to establish a proto-technate:

Land The land should be sufficient to produce a basic amount of food and energy for a small community. More than one area of land should be purchased and they should be purchased close to where the members of NET currently live.

Securing an energy source. As nothing can be done without energy, the proto-technate would need to secure an energy source as soon as it starts. This would initially be done by using solar and wind energy, but may be complimented with other sources. As the network groups up, more sources of energy would be needed, which could include solar towers or other forms of energy production. Whichever method is used, it is important that they are environmentally friendly and renewable.

Coop A cooperative company will need to be established to handle the business side of the proto-technate.References

People People will be needed to form the actual community. "Community" in this context is used in a loose sense. It

does not mean that everyone in the community has to live on the land that the proto-technate owns, although that may be the case.

10.2 Forming a Network

Once a number of communities have been established they need to be networked. It is imagined that perhaps the first few communities would mainly produce food but as more communities are added to the proto-technate, production of other goods could be initiated. The more people and the more communities there are, the more things can be done. What should be done will depend on what others are doing and what is available and needed by others.

10.3 Transferring to a Full Technate

When a reasonably large network has been established, moves can be made to transfer over to a full technate. "Reasonably large" is imprecise as it will depend on the situation of Europe at the time.

Transferring over to a full technate may require some political will and a referendum. It is hoped that a proto-technate will be a demonstration of what a technate is all about and work well enough to be considered as a serious alternative to the current socioeconomic system and the best alternative for a sustainable world. This possibility relies on Europe being in

a civilized state. However, if the worst happens due to peak oil, environmental change, etc., Europe may deteriorate. In this case the proto-technate will offer a stable structure that would attract various groups who would wish to join it. In such a case, Europe would move over to a full technate in parts.

Either way, it is envisioned that it could take 2 or 3 generations for a full technate to be established.

10.4 The Role of Eco-Units

Eco-units are small, self-sufficient communities designed by Swedish systems-ecologist Folke Gunther. They form one possible building block for a proto-technate or even an urbanate in a full technate. Each eco-unit provides food, water, energy and manages the waste of about 200 people. A number of them can be joined together and such a grouping could be an urbanate. They have housing as well as production facilities and food is produced using sustainable methods such as permaculture. In fact, eco-units can be seen as permaculture on a large scale.

Part VI

Social

Chapter 11

Ethics and Constitutionalism

Enrique Lescure

Technocracy shares the characteristics with liberal democracy that it would most likely be established in a codified form, based on a form of constitution called "manual", emphasising the technical nature of the technate. Constitutionalism in essence means that the decision makers would be limited by an appropriate structure in order to make it virtually impossible for them to abuse the power. The absence of constitutionalism would create a lag in the mechanism of duties that the technate has towards its users and create a potetntial danger that the technate might

put up on itself authorities to decisions of which it isn't obliged to accept.

To fully comprehend the implications of what role constitutionalism, and therefore ethics, would play in the technate, we must first investigate the nature of the technate concerning its spectrum of operations, and what scope of implications ethics may have on its functions.

11.1 Understanding the Technocracy

To be able to comprehend what role ethics will have in a technate, one needs to grasp the basic understanding that the technate is not supposed to be a political entity. More clearly, we could state that the technate, although it might share some similarities with a hypothetical state-like entity, is not a state.

That might appear as confusing to some, since the technate has characteristics of administrating the resources of a physical territory in order to provide human beings on that territory with an abundant share of its resources, and having the authority to defend that territory against invaders. These are indeed state-like characteristics.

Some people assume that the establishment of the European Technate is supposed to be the establishment of a new state. But what they fail to grasp, is that the technate would lack the central characteristics of a state - namely, the right to assume legal authority over human beings residing on its territory, which is the central aspect of any state, nation-state or federal-state.

One could say that while a traditional state in the classical

liberal essence is supposed to defend the negative rights of its citizens (the rights to not being subjected to arbitrary confiscation, deprivation of life, liberty and property), the techate is established in order to grant its users with the highest possible standard of life within the context of a sustainable society.

Hence, the technate is properly defined as a service to a defined target group of users, employed by these users in order to provide certain benefits for a given period of time. Even though this service is continental and fully integrated into the total infrastructure of the area of interest, it is still basically a service *under authority* of the users.

Of course, the technate will be provided with the means to defend itself and its users from any external or internal threat to the ability to fulfill its obligations. But that is a part of the service and should be seen as secondary to providing the people with a high standard of life and guaranteeing a sustainable development.

11.2 The Manual of the Technate

The reason for a constitution is to ensure that the technate does not diverge from its original intention and stays on its course. This constitution would in its basis be structured upon the ideological foundation of technocracy, namely, the enlightened utilitarianism expressed in the technocratic operative goals - "the highest possible standard of life for the longest possible time-frame" - or maybe more poetically expressed - "From the automated facilities according to their capabilities, to each in-

dividual according to their needs and wants within the context of sustainability".

The manual of the technate would in essence establish a code of conduct in which the technate would limit its own capacities to governing resources, infrastructure, production, distribution and recycling, keeping out from meddling with human lives.

The motivation of the aforementioned limitation would be to ensure that the technate, due to its enormous capabilities, does not devolve into a state-like entity run by an elite which would limit the lion share of the productive capacity to itself and thus violate the basic ideological foundation of technocracy.

Of course, a constitution in itself cannot prevent that, which is why it is important that we have a transparent and holonic system, where no agent could excel arbitrary force over another agent without the system balancing it out. But it could provide a blueprint to identify and repair "bugs" or leaks in the system.

11.3 On Ethics

I will for now leave the exact details on how a "code of ethics" would be structured, since that is an evolving feature, but the basic axiom is that such a code is an essential part of the aforementioned constitution.

It would not be used to regulate the lives of the users, but to regulate the conduct and behavior of the personnel of the technate in their professional roles. That would of course apply to the majority of the population able to work, but only in the hours when they are doing service to the technate.

As in the constitution, if we don't have such a code of ethics, individuals might excel in cruelty or simple confusion which could cause damage to the operative targets of the technate on a micro-scale and be frustrating to consumers.

11.4 The Social Contract of the Third Millennium

The technate would not, in its European form, impose on itself the transformation of humanity into a new form, but to elevate humanity through the foundation of a sustainable civilisation based around scientific management of resources.

Hence, all ideas to ideologically indoctrinate people into "bettering themselves", genetically engineer people or make divisions based on gender, race, intelligence or physical characteristics is alien to the ideals of European Technocracy and NET.

The basic code of a technate is that each able user should initially make a labor input on a specific number of hours to minimise and streamline the man-hours needed, while in return receiving a given share of production capacity for his/her disposal to order what he/she want to be produced from the technate.

Chapter 12

Technocracy - Government Over Machines

Enrique Lescure

12.1 What is technocracy?

According to dictionaries, technocracy describes a government which is under control of technically skilled people. Many people have associated this interpretation of the concept of "tech-

nocracy" with what actual, existing organisations advocating technocracy want to establish. Technocracy is unique in the aspect that the word itself draws negative connotations from all directions. The political left accuses the political right of being "technocrats" and vice-versa.

When technocrats are confronted about their ideological inclination, they often do not know how to deal with the hostility expressed by persons who have an inner mental picture of technocracy as some form of evil conspiracy, or mindless gray economistic totalitarian belief in the supremacy of industrialism.

We have most often discussed what technocracy is from a technical perspective, which has given the impression that we are hiding or downplaying the "ideological issues". This has given room for accusations.

One could say that when technocrats are confronted on what technocracy is, they generally answer what we want to do. That is of course because no one has up to yet offered any viable definition of technocracy as an ideology. The reason for that is - shamefully enough - that no technocrat has ever investigated any eventual ideological foundation of technocracy.

In this article, we aim to explore why there is so little "ideological self-analysis" in technocracy, about the potential of the human being and the role of the technate, as well as human rights under a technate.

12.2 What is an ideology?

> An ideology is an organized collection of ideas. The word ideology was coined by Count Antoine Destutt de Tracy in the late 18thcentury to define a "science of ideas." An ideology can be thought of as a comprehensive vision, as a way of looking at things (compare Weltanschauung), as in common sense (see Ideology in everyday society) and several philosophical tendencies (see Political ideologies), or a set of ideas proposed by the dominant class of a society to all members of this society. The main purpose behind an ideology is to offer change in society through a normative thought process. Ideologies are systems of abstract thought (as opposed to mere ideation) applied to public matters and thus make this concept central to politics. Implicitly every political tendency entails an ideology whether or not it is propounded as an explicit system of thought. [4]

The three dominant ideologies in Europe and in the European off-shot cultures, have historically been liberalism, conservatism and socialism. Without going in-depth about them, we could state that they share some inherent similarities. What a lot of people tend to forget, is that all three of those ideologies are based on assumptions of human nature. Liberalism and socialism both stress a belief in progress and enlightenment, and share an optimistic view on the human being, while conservatism has generally viewed people as children in need for fa-

therly and paternal guidance (in some sense, that view is prevalent in marxism-leninism, social liberalism and social democracy as well).

Thus, similarities between the three basic ideoloigies from which all other modern ideologies have emerged are that they put human nature, human reason, and a vision for how the human being should pursue his/her happiness in the centre.

In technocracy, the nature of the human being is never investigated, since technocrats choose empirical evidence and statistical information before idealism in judging what should be done. The center of the technocratic world-view is the infrastructure, while the nature of the human being is left in the void, thus efficiently disconnecting technocracy from any short-sentenced reference to why we need to install it.

12.3 Why?

When technocracy was originally formulated in the 1920's, it was a progressive standpoint reflecting the optimism of the early 20^{th}century, the belief in technology itself as well as rationalism, taylorism and American pragmatism. In that essence, Howard Scott did have a point when he referred to technocracy as a post-ideology.

The original technocrats were not philosophers or sociologists, but people with education in natural sciences, with all the strong and weak points of a worldview following such an education.

12.4 The Nature of the Human Being

As a technocrat, one must realise that a human being is a life-form with physical needs which need to be satisfied for it to be able to raise itself. It is acting within a physical world and is talented with an unmatched capacity for abstract thinking, allowing it to interact and form holonic structures (yes, most basic human interaction is holonic by nature), as well as hierarchical units to serve its interests. That is already explored in chapter 23 of the TSC, known as the "Human Animal". [27]

The chapter generally takes a mechanistic viewpoint of human behavior, remniscent of behaviorism, but that is to be seen as a product of the particular level of science during that time.

We, humans, are of course basically still animals, but have taken the first steps towards evolutionary stages where we would be able to control, understand and develop our mental capacities. This development doesn't of course negate neither our more primitive instincts or the need to establish a sustainable society.

It is evidently clear that we should develop our capacity to its fullest extent, but for it to be developed, it cannot be stomped out of the ground by cybernetic implants or control - no matter how benevolent - from above. Without the freedom to develop its full potential, the human being will become stiffled and unable to fulfil its creative needs.

It is of course still unclear exactly how complex the human psyche is, but it is clear that it is fragile, easy to manipulate and even possible to break. Still today, in modern Europe with all its prosperity, many human beings feel detached from life itself

and alienated by the unnecessary demands from society administrated through a price system which demands all responsibility from its agents while virtually refusing to honor anything in return. Newly certified doctors and scientists often end up at MacDonald's, where their talents are wasted, while the medic sector is terribly understaffed. It is a society with physical abundance, where mountains of waste are rising while ethnically and regionally based groups clash over lumps and stones.

What has that to do with human nature?

Of course, if we look at human nature as what the human is today, then it has everything to do with it. The price system has been raised because of generations of human interaction, and has led to unprecedented growth in technology, consumption and capital. This growth will inevitably lead to a downfall. "Human nature" must mean everything that is scientifically predestined to be "human", including primitive as well as less primitive aspects of the human bodily functions and the human mind.

One could claim that the need for accumulation is a part of "human nature", but - if we dissect that aspect from the metaphysical assertions of idealists and instead merge it with our understanding of how other advanced species of mammals function and work - we will quickly reject that argument and instead realise that human nature is a result of millions of years of evolution.

I doubt anyone here is willing to conclude that violence between human beings is an acceptable conduct in a civilised society. Yet, we generally have police forces. Every day, society fights to correct some unwanted actions deriving from human

nature. If we would simply state that technocracy is unable to exist due to a possible contradiction with human nature, we would also render all education, all criminal correction facilities and all programmes to stop crime as "impossible".

Even though technocracy in itself might be an infringement upon one aspect of human behavior, supposedly the observed tendency to accumulate, it is nothing resembling a direct, physical violation of human rights.

12.5 The Human Being Over Technocracy

The technate is of course a government, since it by its nature governs. But it is different from all other governments in one vital characteristic - it is not established to govern over people. The subjects under technocracy are not human beings, but the continental infrastructure, and under it, the resources of the area in question.

Technate is a service, under control of human being. It does not own its production capacity, but administrates the production capacity which is divided into shares owned and used by the human beings living in the same area as the technate. The only thing which the technate needs in order to be operated is technical maintenance from the users, during a specific minimum of time.

The role of the human being in the technate would not be that of a wealthy landlord, a libertarian entrepreneur or a proud

proletarian, but that of an enlightened creator, with full access to a share of production capacity exceeding his/her own individual ability to create. By this autonomy, he/she is given the right to define the meaning with his/her own life. The technate could not impose any laws, taxes or bills.

Any legislative or democratic bodies would lie outside of the operative framework of the technate, and the latter will not be able to influence such agreements. The only foundation of the technate, is that no individual may infringe on any other's right to his/her share of usership of the continental production capacity.

Therefore, technocracy essentially does not need to motivate why the human being deserves to live in such a society, since it exists as a service initiated by human beings, rather than as an autocratic system aimed at transforming human social relations from above.

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